

Serial No.: 10/766,139  
Docket No.: PVI-5541DIVCON  
Amendment dated June 28, 2006  
Responsive to the Office Action dated May 11, 2006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of claims:**

1-17. (Canceled)

18. (Currently amended) A two-part prosthetic heart valve for implantation within a native heart valve, comprising:

a substantially cylindrical tissue-engaging base portion expandable from a collapsed state to an expanded state, the collapsed state sized for delivery through a delivery catheter to a heart valve annulus and the expanded state sized to contact the heart valve annulus; and

a leaflet subassembly including a metallic support structure and three heart valve leaflets, the leaflets being attached to the support structure at commissures, wherein the support structure has a fabric covering and the three heart valve leaflets are attached to the support structure at least in part by stitches along the fabric covering;

wherein the leaflet subassembly is attachable configured to mechanically connect to the tissue-engaging base portion for providing a prosthetic heart valve.

19. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the support structure comprises a wireform and wherein the three heart valve leaflets are attached to the wireform.

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20. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the support structure is self-expandable.

21. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the support structure comprises an elastic wireform for supporting the leaflets and wherein the wireform provides alternating commissures and cusps.

22. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the three heart valve leaflets are individual leaflets attached to the support structure separately from each other.

23. (Canceled)

24. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the three heart valve leaflets are formed of bioprosthetic tissue.

25. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the tissue-engaging base portion is plastically-expandable from its collapsed state to its expanded state.

26. (Previously presented) The two-part prosthetic heart valve of claim 18, wherein the tissue-engaging base portion is self-expandable from its collapsed state to its expanded state.

27-37. (Canceled)

38. (New) A two-part prosthetic heart valve for implantation within a native heart valve, comprising:

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a tissue-engaging base expandable from a collapsed state to an expanded state, the collapsed state sized for advancement through a patient's vasculature to a heart valve annulus and the expanded state sized to engage the heart valve annulus;

a leaflet subassembly including a support structure and three heart valve leaflets, the leaflets being attached to the support structure at their commissures; and

a plurality of discrete mating connectors on the leaflet subassembly and tissue-engaging base, the mating connectors configured to mechanically couple the leaflet subassembly to the tissue-engaging base when the tissue-engaging base is in the expanded state.

39. (New) The two-part prosthetic heart valve of claim 38, wherein the tissue-engaging base portion is plastically-expandable from the collapsed state to the expanded state.

40. (New) The two-part prosthetic heart valve of claim 38, wherein the support structure comprises an elastic wireform for supporting the leaflets and wherein the wireform provides alternating commissures and cusps.

41. (New) The two-part prosthetic heart valve of claim 40, wherein the leaflet subassembly attaches to the tissue-engaging base at discrete locations, securely coupling each of the commissures and cusps of the elastic wireform to the base.

42. (New) The two-part prosthetic heart valve of claim 40, further including a plurality of commissure posts rigidly attached to the tissue-engaging base so as to extend generally axially beyond the outflow end, and a plurality of cusp posts rigidly attached to the tissue-engaging base so as to extend beyond the outflow end, each commissure posts and cusp post having one of the mating connectors thereon for securely coupling to a mating connector on one of the commissures and cusps of the elastic wireform.

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43. (New) The two-part prosthetic heart valve of claim 38, wherein each pair of the mating connectors joins by axially displacing the leaflet subassembly toward the tissue-engaging base.

44. (New) A two-part prosthetic heart valve for implantation within a native heart valve, comprising:

a tissue-engaging base expandable from a collapsed state sized for advancement through a delivery catheter to an expanded state sized to contact the valve annulus, the tissue-engaging base generally defining a tubular body having an inflow end and an outflow end; and

a leaflet subassembly including three heart valve leaflets, the leaflet subassembly adapted to mechanically couple to the tissue-engaging base to form a prosthetic heart valve;

wherein, after assembly, the three heart valve leaflets are axially spaced from the outflow end of the tubular body such that the heart valve leaflets are not positioned within the tubular body.

45. (New) The two-part prosthetic heart valve of claim 44, wherein the tissue-engaging base portion is plastically-expandable from its collapsed state to its expanded state.

46. (New) The two-part prosthetic heart valve of claim 44, wherein the leaflet subassembly comprises an elastic wireform having alternating commissures and cusps for supporting the three heart valve leaflets.

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47. (New) The two-part prosthetic heart valve of claim 46, wherein the leaflet subassembly is configured to mechanically couple to the tissue-engaging base along a plurality of discrete locations.

48. (New) The two-part prosthetic heart valve of claim 44, further comprising metallic coupling members on the tissue-engaging base and leaflet subassembly for allowing the leaflet subassembly to mechanically couple to the tissue-engaging base.

49. (New) The two-part prosthetic heart valve of claim 48, wherein the metallic coupling members on the tissue-engaging base comprise axial posts configured for connection to the mechanical coupling members on the leaflet subassembly.